

Application Serial No: 09/987,766
Attorney Docket No.: 51950 (ACT-163)

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended): An optical assembly, comprising:
a substrate ~~including~~ comprising an upper surface and a cut-out portion;
an optical array mounted on said upper surface; and
an imaging assembly positioned at least partially within said cut-out portion, said
imaging assembly ~~including~~ comprising at least one imaging device mounted on a first
chip;
wherein said optical array is optically coupled to said imaging assembly.
2. (Original): The optical assembly of claim 1, wherein said optical array is affixed to said imaging assembly and said imaging assembly is affixed to said substrate.
3. (Currently amended): The optical assembly of claim 2, further comprising a waveguide mounted on said substrate, said waveguide being optically coupled with said imaging assembly and ~~including~~ comprising at least one waveguide core encased within a cladding.
4. (Currently amended): The optical assembly of claim 3, further ~~including~~ comprising an integrated optic chip mounted on said substrate.
5. (Original): The optical assembly of claim 4, wherein said integrated optic chip is mounted on said waveguide.
6. (Original): The optical assembly of claim 2, wherein said optical array comprises an optical bench.

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7. . . . (Currently amended): The optical assembly of claim 2, wherein said optical array comprises an optical fiber array ~~including~~ comprising a second chip and at least one optical fiber mounted to said second chip.

8. . . . (Original): The optical assembly of claim 7, wherein a portion of said optical fiber extends over said cut-out portion.

9. . . . (Original): The optical assembly of claim 7, wherein said second chip includes at least one V-groove, said optical fiber being mounted in said V-groove of said second chip.

10. . . . (Original): The optical assembly of claim 9, wherein said second chip further includes a notch transverse to said V-groove.

11. . . . (Original): The optical assembly of claim 7, wherein said optical fiber array comprises a lid chip.

12. . . . (Original): The optical assembly of claim 1, wherein said first chip includes at least one V-groove, said imaging device being mounted in said V-groove of said first chip.

13. . . . (Original): The optical assembly of claim 1, wherein said imaging device comprises a lens.

14. . . . (Original): The optical assembly of claim 13, wherein said lens comprises a GRIN lens.

15. . . . (Original): The optical assembly of claim 1, wherein said imaging device comprises a graded index fiber.

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16. (Original): The optical assembly of claim 1, wherein said imaging device comprises a step-index fiber.
17. (Original): The optical assembly of claim 1, wherein said imaging device comprises a ball lens.
18. (Original): The optical assembly of claim 1, wherein said cut-out portion is a valley.
19. (Original): The optical assembly of claim 1, wherein said cut-out portion includes a recessed area between at least one pair of ledges.
20. (Original): The optical assembly of claim 19, wherein said substrate further includes at least one notch on a side of said ledges, said notch serving as a wick stop.
21. (Currently amended): An optical assembly, comprising:
a substrate ~~including~~ comprising an upper surface, a cut-out portion and a side surface;
an optical array mounted on said upper surface;
an imaging assembly positioned at least partially within said cut-out portion, said imaging assembly ~~including~~ comprising at least one imaging device mounted on a first chip, wherein said optical array is optically coupled to said imaging assembly; and
an integrated optic chip affixed to said side surface of said substrate.
22. (Currently amended): The optical assembly of claim 21, further comprising a waveguide mounted on said integrated optic chip, said waveguide being optically coupled with said imaging assembly and ~~including~~ comprising at least one waveguide core encased within a cladding.
23. (Original): The optical assembly of claim 21, wherein said substrate further comprises at least one notch serving as a wick stop.

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24. (Currently amended): An optical assembly, comprising:
a notch which serves as a wick stop;
a substrate ~~including~~ comprising an upper surface;
an optical array mounted on said upper surface;
adhesive positioned on said upper surface so as to affix said optical array to said upper surface without said adhesive entering said notch;
an integrated optic chip mounted on said upper surface; and
a waveguide mounted on said integrated optic chip, said waveguide ~~including~~ comprising at least one waveguide core encased within a cladding, wherein said optical array is optically coupled to said integrated optic chip through said waveguide.
25. (Original): The optical assembly of claim 24, wherein said notch is within said substrate.
26. (Original): The optical assembly of claim 25, wherein said optical array is mounted on said upper surface such that it at least partially covers said notch.
27. (Original): The optical assembly of claim 26, wherein said optical array completely covers said notch.
28. (Original): The optical assembly of claim 24, wherein said optical array comprises an optical fiber array which includes at least one optical fiber mounted on a fiber chip.
29. (Original): The optical assembly of claim 24, wherein said optical array comprises an optical bench.
30. (Currently amended): An optical assembly, comprising:
a substrate ~~including~~ comprising an upper surface;

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an optical array mounted on said upper surface, said optical array ~~including~~
comprising a notch which serves as a wick stop;
an integrated optic chip mounted on said upper surface; and
a waveguide mounted on said integrated optic chip, said waveguide ~~including~~
comprising
at least one waveguide core encased within a cladding, wherein said optical array
is optically coupled to said integrated optic chip through said waveguide.

31. (Original): The optical assembly of claim 30, wherein said optical array
comprises an optical fiber array which includes at least one optical fiber mounted on a
fiber chip, said notch being within said fiber chip.

32. (Original): The optical assembly of claim 30, wherein said integrated optic chip
and said optical array are optically coupled at an interface which is vertically above said
notch.

33. (Currently amended): An optical assembly, comprising:
a substrate ~~including~~ comprising an upper surface;
an optical array mounted on said upper surface;
an integrated optic chip mounted on said upper surface, said integrated optic chip
~~including~~ comprising a notch which serves as a wick stop; and
a waveguide mounted on said integrated optic chip, said waveguide ~~including~~
comprising at least one waveguide core encased within a cladding, wherein said optical
array is optically coupled to said integrated optic chip through said waveguide.

34. (Original): The optical assembly of claim 33, wherein said integrated optic chip
and said optical array are optically coupled at an interface which is vertically above said
notch.

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35. (Original): A method for assembling an optical assembly which includes a substrate having an upper surface and a cut-out portion, an optical array, and an imaging assembly, said method comprising:

positioning said optical array on said substrate upper surface;
lowering said imaging assembly at least partially within said cut-out portion;
optically coupling said optical array with said imaging assembly; and
affixing said imaging assembly to said substrate and said optical array to said imaging assembly.

36. (Original): The method of claim 35, wherein said optical array comprises an optical fiber array with a plurality of optical fibers and wherein said upper surface includes a plurality of V-grooves, said positioning step comprising positioning each said optical fiber within one of said V-grooves.

37. (Original): The method of claim 35, wherein said imaging assembly comprises a plurality of lenses within a chip, said optically coupling step comprising moving said optical fibers such that an end of each said fiber comes into contact with an end of a respective said lens.

38. (Original): The method of claim 35, wherein said affixing step comprises adhering said imaging assembly to said substrate and adhering said optical array to said imaging assembly.

39. (Original): The method of claim 35, wherein said cut-out portion includes a recessed area between a pair of ledges, further comprising the step of creating a notch on at least one side of said ledges.

40. (New): The optical assembly of claim 1, wherein said imaging device comprises a GRIN lens, a graded index fiber, a step-index fiber, or a ball lens.

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41. (New): The optical assembly of claim 1, wherein said optical array comprises a fiber chip or an optical bench.

42. (New): The optical assembly of claim 1, wherein said substrate is a monolithic substrate.

43. (New): An optical assembly, comprising:
a monolithic substrate comprising an upper surface and a cut-out portion;
an optical array mounted on said upper surface; and
an imaging assembly positioned at least partially within said cut-out portion, said imaging assembly comprising at least one imaging device;
wherein said optical array is optically coupled to said imaging assembly.